CPSC 386 – Fall 2019

Introduction to Game Design & Production

Project One: PONG w/o walls

due at beginning of class – 386-01: 18 Sep (W)
386-02: 20 Sep (F)

In this assignment, you will create a variation of the classic Pong app called Pong No Walls (AI).

The variation has no walls at all; it has six paddles (three for the player, and three for the computer). The player has one side paddle (moves up/down), and two horizontal paddles (top/bottom).

The computer moves its paddles by tracking the *x* and *y* position of the ball, and adjusts its paddles' position accordingly. The velocity of the computer's paddles can be made to be slower (easier game), or faster (harder game, the computer almost never misses).

The player moves its paddles using the arrow keys. The side paddle moves with the up and down arrow keys. The horizontal paddles move synchronously with the left and right arrow keys.

Complete the following – A classic 2-d PONG game, with a few differences:

1. A SPHERE for the ball (not a rectangle).
2. Uses LANDSCAPE orientation with Player on the right, and the Computer on the left.
3. No walls – the classic pong game has walls on the side, and paddles at each end. Your game will have no walls at all, so you will need paddles on all sides. (see next point).
4. THREE paddles (with image backgrounds – not white) for the player (top, right, and bottom), and three paddles for the computer (top, left, and bottom).
   The top/bottom paddles both move together, and are BOTH controlled by the Left/Right arrow keys. The Right paddle is controlled by the Up/Down arrow keys. (The computer of course controls its paddles.)
5. A dashed net running vertically down the middle of the screen. The ball is served at random velocities (random angles and random speeds) at the beginning of each point.
6. The player's score and the computer's score shown on each side.
   Pong winner must win three games out of five; for each game, winner must have at least 11 points, and also must win by at least 2 points.
7. Hitting the ball with a paddle causes a sound; winning the game plays a "winning clip" of music; losing the game causes a "losing clip". Winning the match has a longer, more exciting musical clip that plays at the end.
8. At the end of the game, a "play again?" prompt is shown.
9. When a ball hits a paddle on the left/right side, its v_x should be reversed. Similarly, a ball hitting a top/bottom paddle should reverse its v_y.

10. For an extra challenge (and to make your game more fun), you can add frictional forces to the paddle hitting the ball.
    For example, if the ball is moving to the right with velocity (v_x, 0), and the paddle moves quickly up when it hits the ball, the ball will now be moving with velocity ($-v_x$, $-v_y$). (Remember that $-v_y$ means the ball is moving UP.)

11. It will help you if you use classes to create the ball, the score, and the paddles.

12. Do not take code off the Internet and paste it as is. DO study the classic Pong game, Pygame, and Python code examples, but then close the example and write the code yourself.

13. Push the contents of your project to a new GitHub repository using a git client. Do not submit files using drag-and- drop onto the repository web page, and do not push this assignment to the same repository as your previous homework assignments.

Submission

Turn in the code for this homework by uploading all of the Python source files you created, the images directory, and the sounds directory to a single public repository on GitHub. While you may discuss this homework assignment with other students. Work you submit must have been completed on your own.

To complete your submission, print the following sheet, fill out the spaces below, and submit it to the professor in class by the deadline. Failure to follow the instructions exactly will incur a **10%** penalty on the grade for this assignment.

CPSC 386 Project One: Pong w/o walls:

due 18 Sep (-01), 20 Sep (-02) at beginning of class

Your name

Repository:
https://github.com/_____/
_____

Finished	Not Finished	**Verify each of the following items and place a checkmark in the correct column. Each item incorrectly marked will incur a 5% penalty on the assignment's grade.**
❑	❑	The Pong screen shows six paddles, a net, the current score of the player and the computer for the game and for the match, and the number of points needed to win a game.
❑	❑	The ball is served at random velocities (angles and speeds) from the net.
❑	❑	The ball must be struck by the paddles to keep it in play. Missing a ball causes the appropriate score to be incremented.
❑	❑	The player's paddles are controlled by the arrow keys; and the computer's by it watching the ball. Slower paddle movement will help the player win more.
❑	❑	The ball makes a sound when it hits a paddle. There is a short winning/losing clip played when a game is won, and a longer one when a match is won/lost.
❑	❑	When the game is over, or the match is over, the player who won is shown.
❑	❑	No issues are shown in PyCharm (all source code screens shown a green checkmark at the top right hand corner).
❑	❑	Image files edited in an image editor (such as Gimp or Inkscape).
❑	❑	Sound files edited in an audio editor (such as Audacity).
❑	❑	Project directory pushed to new GitHub repository listed above
❑	❑	Project directory has been pushed using a GitHub client, not by manually dragging-and-dropping files onto the GitHub web page.

Comments: